

Appl. No. 10/042,626
Amdt. Dated July 22, 2004
Reply to Office action of Aug.17, 2004

Amendments to the Claims: (Marked-up copy)

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A ~~geometrical total design arrangement~~ for planet-type roller gears. The basic geometrical relationships evolve around the "cyclo-module," to the cyclo housing/roller cage, the cyclo wave disk, and the cam/eccentric dimensions the radius, "R" of the cyclo tooth. These ~~geometrical design relations and the realized simplifications are~~ and improvements of the cyclo gear axis system are the basic features of these ~~inventions~~ claims.

Claim 2 (currently amended): A ~~geometrical design arrangement~~ for planet type roller gear according to claim 1 wherein: the roller ~~cage~~ radius has the given relation to the cyclo-module as shown in FIG. 1.9.

Claim 3 (currently amended): A ~~geometrical design arrangement~~ for planet type roller gears to claim 2: wherein the roller size R₁ ~~has a geometrical relation to the cyclo module as indicated~~ the roll-up diameter D2, provide the three tangent points to generate the tooth cup radius "r" of the cyclo disk is illustrated under FIG. 1.9 and Table 2.

Claim 4 (currently amended): A ~~geometrical design arrangement~~ for planet type roller gears according to claim 3: wherein the eccentric has a ~~geometrical relation to the cyclo module~~ as shown in Figure 1.9 and claim 3 Table 2.

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Claim 5 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 4: wherein the wave disk has a geometrical relation to claim ~~1-4~~ 2 and 3 and Figure 1.9 and Table 2.

Claim 6 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 5: wherein three eccentrics are ~~spaced~~ indexed equally between around the center and the roller cage as shown in drawings ~~FIGS. 3 and 4~~ Figure 1.1, 1.2, 1.8, 1.10.

Claim 7 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 6: wherein the number of ~~eams are not limited to~~ eccentrics shown are 1, 2, or 3 as drawn in Figure 2.1, 2.2, 2.3. ~~The Size of the cyclo assembly and cost will determine if more than three eams are practical.~~

Claim 8 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 7: wherein the ~~eams~~ eccentrics are spaced to drive ~~out~~ the high torque generated by the cyclo gears and wave disk(s) in connection ~~to~~ with the ~~eam(s)~~ containing flanges as shown in Figure 1.1, 1.2..

Claim 9 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 8: wherein the two drive-out flanges are driven by the ~~eams by~~ eccentrics ~~play-free bearings (FIGS. 3,4)~~ as in Figure 1, 2..

Claim 10 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 9: wherein flange and housing bearings form a complete unit axesaxis-cyclo-gear-assembly (FIGS. 3,4,5) with taped mounting holes, as shown in Figure 1.1, 1.2.

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Claim 11 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 10: wherein ~~a multitude of rods (~~ six hollow torque, stabilizing bars with sleeves, ~~), hallow or solid, stabilize and rigidities the two drive-out flanges as shown in FIGS. 3,4,5. to a coherent gear-driven axis assembly~~ Figures 2.1, 2.2, 2.3.

Claim 12 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 11: wherein ~~a single or pair of deep groove or a cross-roller bearing is used to stabilize the high torque flange to the gear housing, as in FIG. 2~~ Figures 1.1, 2.1, 2.2, 2.3, to make the gear assembly an axis or turntable.

Claim 13 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 12: wherein ~~all hallow cyclo rollers are securely positioned with pins to the roller cage~~ reset or hallowed and pinned as shown in FIGS. 1-5 Figure 2.1, 2.2, 2.3.

Claim 14 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 1 ~~to~~ through 13, wherein the rotating position accuracy by the use of the cyclo gear assembly is further enhanced by controlling its position. ~~To know the rotation position at any time by adding an absolute shaft encoder to the gear axis drive-in as shown on Figure 5. or drive-out, depending on the use of the cyclo gear drive/axis, as shown on FIG. 6. This is a very important and useful feature and a very worthwhile claim.~~

Claim 15 (currently amended): A geometrical design arrangement for planet type roller gears according to claim 14: wherein ~~the~~ a two channel absolute angular encoder, consisting of a permanently battery power backed "On" encoder with up/down counter